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ABSTRACT

Changes in mothers' strategies for eliciting verbal responses (EVR's) as a function of child age were investigated in this study. Seven mother-child dyads were observed in their homes when the children were 16, 21, 24, 30, and 34 months of age. Mother EVR's were coded according to syntactic form, type of cue for child response, and complexity of the child's expected response. Developmental trends were apparent across all three dimensions. Diversity of mother EVR's and complexity of expected child response were correlated with increases in the mean length of children's utterances (MLU). Generally, EVR's requiring more complex child responses and providing fewer cues increased with child age and MLU. The mother's feedback for child responses to various cues was correlated with her use of EVR's including those cues, and with complexity of child's expected response. Individual analyses of three hierarchical levels of cues (modeling, direct requests for label, and open-ended information/opinion seeking questions) revealed different developmental trends for each cue level. (Author/RH)

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# LONGITUDINAL CHANGES IN MOTHERS' QUESTIONS TO THEIR LANGUAGE LEARNING CHILDREN

Ann K. Rogers-Warren, Louise M. Nielsen, and Gillian Blair

## ABSTRACT

Changes in mothers' strategies for eliciting verbal responses (EVRs) as a function of child age were investigated. Sever mother-child dyads were observed in their homes when the children were 16, 21, 24, 30 and 34 months of age. Mother EVRs were coded according to (1) syntactic form, (2) the type of cue for child response, and (3) the complexity of the expected child response. Developmental trends were apparent across all three dimensions. Diversity of mother EVRs and complexity of expected child response were correlated with increases in children's MLU. Generally, EVRs requiring more complex child responses and providing fewer cues increased with child age and MLU. Mother feedback for child responses to various cues was correlated with her use of EVRs including those cues and complexity of expected child response. Individual analyses of three hierarchical levels of cues (1) modeling, (2) direct requests for label, and (3) open-ended information/opinion seeking questions revealed different developmental trends for each cue level.

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Table 1

The Categories of Mother Behaviors from the

Mother-Child Interaction Code IV

MOTHER BEHAVIORS

I. Elicits Verbal Behavior[1]

| | |
|---|---|
| SF | Elicits a Specific Form |
| SFQ | Elicits a Specific Form as a Question |
| SFM | Elicits a Specific Form with Model |
| SFMQ | Elicits a Specific Form with Model as a Question |
| IOQ | Information/Opinion Seeking - Question |

II. Elicits Acknowledgement

| | |
|---|---|
| RTY | Receptive Testing - Yes/No |
| IOY | Information/Opinion Seeking |
| ENQ | Encoding as a Question |
| RQ | Response Question |
| AIQ | Adds Information as Question |

III. Elicits Nonverbal Behavior[2]

| | |
|---|---|
| I | Instruction |
| RTNV | Receptive Testing - Nonverbal |

IV. Feedback for Verbal Behavior

| | |
|---|---|
| PFV | Positive Feedback (praise) for Verbalization |
| CFV | Corrective Feedback for Verbalization |
| AV | Acknowledgement of Verbalization - Positively Stated |
| AV- | Acknowledgement of Verbalization - Negatively stated |

V. Feedback for Nonverbal Behavior

| | |
|---|---|
| PFNV | Positive Feedback (praise) for Nonverbal Behavior |
| ANV | Acknowledgement of Nonverbal Behavior - Positively Stated |
| ANV- | Acknowledgement of Nonverbal Behavior - Negatively Stated |

VI. Comments

| | |
|---|---|
| EN | Encoding |
| AI | Adds Information |

VII. Answers

| | |
|---|---|
| AY | Answers with Yes or No |
| AEN | Answers by Encoding |
| AAI | Answers with Additional Information |

Table 1 (continued)

VIII. Other

| | |
|---|---|
| VOC | Vocative |
| RDG | Reading |
| OTH | Other |
| XXX | Unintelligible |
| CE | Clarification/Elaboration |

[1]Elicits Verbal Behavior Category targeted for further investigation in this study.

[2]Elicits Non-Verbal Behavior Category used for comparative purposes in the present study.

Table 2

Codes for the Dimension of Cue

| CUE | TYPE | |
|---|---|---|
| Specific Form with a Model | (SFM) | Mother's EVR seeks a specific answer from the child. Mother's utterance provides a model, and may be in a question form.<br><br>Examples: Say 'ball'.<br>Can you say 'ball'? |
| Specific Form | (SF) | Mother's EVR functions to elicit a specific form from the child. The utterance may be in question form. No model is provided.<br><br>Examples: Tell me what this is.<br>What is this? |
| Information or Opinion Seeking Question | (IOQ) | Mother's EVR seeks information that is unknown to the mother, or an opinion from the child.<br><br>Example: What do you want that for? |

Note: There is a three-level hierarchy in the cue coding system based on the saliency or amount of information mother's EVRs provide. The cue types may be arranged in the following order according to the increasing sophistication of the child response: SFM, SF and IOQ.

Table 3

Codes for the Dimension of Form

| FORM TYPE | CONSTITUENTS | EXAMPLES |
|---|---|---|
| A | (say / tell me / tell mom)$^{+}$ + WH* + {is / are / do / does / did} ⟷ noun phrase | $A_1$ Tell me who this is. |
| | | $A_2$ What is this? |
| B | (say / tell me / tell mom)$^{+}$ + WH + X + {is / are / do / does / did} ⟷ X | $B_1$ Say what kind of animal this is. |
| | | $B_2$ Which color is this? |
| C | (say / tell me / tell mom)$^{+}$ + WH + {has / is / are / do / does / did} ⟷ NP + VP(+X) | $C_1$ Tell me what the kitty is saying to the duck. |
| | | $C_2$ What's the doggie doing with the stick? |
| D | (say / tell me / tell mom)$^{+}$ + WH + {you are / are you / will you / you (will)} + {doing / gonna do / did / do} + X | $D_1$ Say what you did last night. |
| | | $D_2$ What are you gonna do now? |
| E | (say / tell me / tell mom)$^{+}$ + MODEL | $E_1$ Say hi. |
| | | $E_2$ Can you say horse? |
| X | (say / tell me / tell mom)$^{+}$ + X | $X_1$ Tell me a story. |
| | | $X_2$ Why are you crying? |

*who
what
when
where
why
how

Table 4

Codes for the Dimension of Complexity

| COMPLEXITY TYPE | CLASS OF CHILD RESPONSE | TYPICAL QUESTIONS |
|---|---|---|
| I. | Imitation | Say 'ball'. |
| II. | Person | Who is that? |
| | Thing | What is that? |
| | Animal | What animal is this? |
| | Animal Noises | What does the cow say? |
| III. | Place | Where is the ball? |
| | Quantity | How many? How old? |
| | Action | What are you doing? |
| | Purpose | What do you do with a hammer? |
| | Shape | What shape is this? |
| | Color | What color is this? |
| | Possession | Whose toy is that? |
| IV. | Time | When shall we go? |
| | Manner | How do you do it? |
| | Relationships | What is bigger? Which is faster? |
| V. | Causality | How come? Why is that happening? |
| | Probability | What if you put it on the top? |
| VI. | Non-activity bound stimuli<br>H is not expecting a response from the child (rhetorical)<br>Free mands<br>EXAMPLES: Tell me a story/<br>Tell me what's wrong/ | |

Note: There is an implicit hierarchy in the complexity coding system based on the child's potential response. Complexity Levels from 0 to V represent increasingly difficult and sophisticated child responses.

## ABSTRACT

CHANGES IN MOTHERS' STRATEGIES FOR ELICITING VERBAL RESPONSES (EVRs) AS A FUNCTION OF CHILD AGE WERE INVESTIGATED. SEVEN MOTHER-CHILD DYADS WERE OBSERVED IN THEIR HOMES WHEN THE CHILDREN WERE 16, 21, 24, 30 AND 34 MONTHS OF AGE. MOTHER EVRs WERE CODED ACCORDING TO (1) SYNTACTIC FORM, (2) THE TYPE OF CUE FOR CHILD RESPONSE, AND (3) THE COMPLEXITY OF THE EXPECTED CHILD RESPONSE. DEVELOPMENTAL TRENDS WERE APPARENT ACROSS ALL THREE DIMENSIONS. DIVERSITY OF MOTHER EVRs AND COMPLEXITY OF EXPECTED CHILD RESPONSE WERE CORRELATED WITH INCREASES IN CHILDREN'S MLU. GENERALLY, EVRs REQUIRING MORE COMPLEX CHILD RESPONSES AND PROVIDING FEWER CUES INCREASED WITH CHILD AGE AND MLU. MOTHER FEEDBACK FOR CHILD RESPONSES TO VARIOUS CUES WAS CORRELATED WITH HER USE OF EVRs INCLUDING THOSE CUES AND COMPLEXITY OF EXPECTED CHILD RESPONSE. INDIVIDUAL ANALYSES OF THREE HIERARCHICAL LEVELS OF CUES (1) MODELING, (2) DIRECT REQUESTS FOR LABEL, AND (3) OPEN-ENDED INFORMATION/OPINION SEEKING QUESTIONS REVEALED DIFFERENT DEVELOPMENTAL TRENDS FOR EACH CUE LEVEL.

# INTRODUCTION

MOTHERS' VERBAL BEHAVIOR TO THEIR LANGUAGE LEARNING CHILDREN SERVES TWO PURPOSES. FIRST AND FOREMOST, MOTHER VERBALIZATIONS COMMUNICATE TO THE CHILD AND ATTEMPT TO ENGAGE THE CHILD IN SOCIAL INTERACTION. IN THE EARLY PERIODS OF LANGUAGE LEARNING, MOTHERS VERBALIZATIONS ALSO APPEAR TO SERVE A TEACHING FUNCTION (MOERK, 1976; 1983). MOTHERS STRATEGIES FOR ELICITING VERBAL RESPONSES (EVRs) ARE OF PARTICULAR INTEREST BECAUSE THEY ARE A FREQUENT AND POTENTIALLY IMPORTANT TEACHING STRATEGY. ELICITED VERBAL RESPONSES PROVIDE MOTHERS WITH A SPECIFIC SAMPLE OF CHILDREN'S LINGUISTIC AND CONCEPTUAL KNOWLEDGE. CHILDREN'S RESPONSES POTENTIALLY PROVIDE A BASIS FOR FINER ADJUSTMENTS IN MOTHER SPEECH DIRECTED TO THE CHILD, AS WELL AS PROVIDING AN OPPORTUNITY FOR FEEDBACK AND FURTHER TEACHING.

PURPOSE: THE CURRENT LONGITUDINAL STUDY ANALYZED CHANGES IN MOTHERS STRATEGIES FOR ELICITING VERBALIZATIONS FROM THEIR CHILDREN ACROSS AN 18-MONTH PERIOD. THE TYPES OF CUES, DIVERSITY OF FORMS, AND COMPLEXITY OF EXPECTED CHILD RESPONSE WERE TRACKED AS DESCRIPTORS OF CHANGES IN MOTHER STRATEGY. IF MOTHERS ACTIVELY USE EVRs FOR TEACHING LANGUAGE, IT WAS HYPOTHESIZED THAT SYSTEMATIC CHANGES TOWARD MORE COMPLEX AND DIVERSE MOTHER BEHAVIORS WOULD BE NOTED AS CHILD MLU AND AGE INCREASED. FURTHER, FEEDBACK FOR CHILD PERFORMANCE SHOULD SHOW A SIMILAR PATTERN AS MOTHERS USE OF EVRs.

## METHOD

SUBJECTS. THE SEVEN MOTHER-CHILD DYADS WHO PARTICIPATED IN THE STUDY WERE PART OF AN 18-MONTH LONGITUDINAL INVESTIGATION OF MOTHER-CHILD LANGUAGE-TEACHING INTERACTIONS. EACH DYAD IN THE LONGITUDINAL STUDY WAS SELECTED ON THE BASIS THAT THE MOTHERS HAD A HIGH SCHOOL LEVEL EDUCATION, WERE NOT EMPLOYED OUTSIDE THE HOME, AND WERE THE PRIMARY CARETAKERS OF THEIR CHILDREN. ALL CHILDREN WERE NORMALLY DEVELOPING AND WERE 16 MONTHS OLD WHEN THE STUDY BEGAN.

SETTING. MOTHER-CHILD DYADS WERE VIDEOTAPED IN THEIR HOME MONTHLY BY TRAINED HOME VISITORS. EACH VIDEOTAPED SESSION LASTED 20 MINUTES AND CONSISTED OF 10 MINUTES OF STRUCTURED PLAY AND 10 MINUTES OF FREEPLAY. VERBATIM TRANSCRIPTS WERE PREPARED THEN CODED BY THREE TRAINED CODERS USING THE MOTHER-CHILD INTERACTION CODE VI (ROGERS-WARREN, ALPERT, MCQUARTER, MEROLA AND WEEKS, 1980). UTTERANCES CODED IN THE CATEGORY "MOTHER ELICITS VERBAL" WERE THE DATA BASE FOR THIS STUDY.

SAMPLE SELECTION. FIVE OF THE 18 AVAILABLE SAMPLES (16, 21, 24, 30, AND 34 MONTHS) WERE SELECTED FOR USE IN THIS STUDY. SAMPLES WERE SELECTED TO REPRESENT CHANGES IN CHILD LINGUISTIC COMPETENCY ACROSS THE 18-MONTH PERIOD.

RELIABILITY. RELIABILITY CHECKS WERE PERFORMED ON EACH CATEGORY OF MOTHER AND CHILD BEHAVIOR FOR EACH OF THE MONTHS SAMPLED. A TOTAL OF 10 RELIABILITY CHECKS WERE CONDUCTED. THE OVERALL RELIABILITY SCORES FOR MOTHER AND CHILD BEHAVIORS WAS 91%. THE AVERAGE RELIABILITY ACROSS ALL CATEGORIES WAS 90% FOR 16 MONTH DATA; 94% FOR 21 MONTH DATA; 96% FOR 24 MONTH DATA; 88% FOR 30 MONTH DATA; AND 91% FOR 34 MONTH DATA.

## MEASURES

THE "MOTHER ELICITS VERBAL PARADIGM CODE" (NIELSON, 1982) WAS DEVELOPED TO CHARACTERIZE MOTHER VERBALIZATIONS THAT POTENTIALLY FUNCTIONED TO ELICIT CHILD VERBAL RESPONSES. THE CUE, FORM AND COMPLEXITY DIMENSIONS OF MOTHERS' EVRS, CHILD RESPONSIVENESS TO EVRS, AND MOTHER FEEDBACK FOR CHILD RESPONSES WERE SCORED FOR EACH EVR EPISODE.

DIMENSION CODE FOR MOTHER. EACH MOTHER'S EVR WAS CODED ALONG THREE DIMENSIONS: CUE, FORM AND COMPLEXITY.

CUES WERE CODED ACCORDING TO A THREE-LEVEL HIERARCH BASED ON SALIENCY OR AMOUNT OF INFORMATION PROVIDED IN THE MOTHERS' UTTERANCES.

FORM. CODING DISCUSSED THE SYNTACTIC STRUCTURE OF EVRS AND WAS BASED ON PREVIOUS WORK BY SHATZ (1979) IDENTIFYING COMMON QUESTION FRAMES.

COMPLEXITY. COMPLEXITY OF EVR REFERRED TO THE DIFFICULTY OF THE CHILD RESPONSE BEING ELICITED. A MEASURE OF OVERALL COMPLEXITY WAS COMPUTED BY WEIGHTING THE EXPECTED CHILD RESPONSE BASED ON ITS SEMANTIC COMPLEXITY: (1) IMITATION x1, (2) LABLE x2, (3) MODIFIER x3, (4) RELATIONSHIP x4 AND (5) CAUSALITY x5. THE FORMULA FOR OVERALL COMPLEXITY WAS:

$\sum$ NUMBER OF OCCURRENCES WITHIN A CATEGORY X WEIGHTING (1-6)

DIVERSITY. OVERALL DIVERSITY OF MOTHER EVRS WAS CALCULATED BY SUMMING THE NUMBER OF DIFFERENT CATEGORIES USED WITHIN CUE, COMPLEXITY AND FORM DIMENSION.

## RESULTS

In general, mothers EVRs requested more complex child responses across the 18 months of the study. Complexity of expected child response increased with changes in child MLU (Figure 1). The global index of mother diversity also increased systematically with child MLU. Correlation between mother diversity and child MLU was .989 ($T_3 = 11.57$ $p < 0.005$): between expected complexity and child MLU, the correlation was .821 ($T_3 = 2.48$ $p < 0.05$). Mother MLU was not correlated with age or increasing child MLU.

Child responsiveness to mother attempts to elicit a verbal response systematically increased over time, from just over 20% at 16 months to about 60% at 30 and 34 months. A developmental progression was equally evident in child responses to cue, complexity, and form dimensions of mother EVRs (Figure 2).

Within mother EVRs, separate analysis of three levels of cues were conducted. Modeling (requests for a specific form using a model; level 1) was most frequent at 16 months and declined over subsequent samples (Figure 3). Direct requests for labels (level 2) remained fairly stable across 18 months (Figure 4). Open-ended information/opinion seeking questions (level 3) remained infrequent across the months sampled but increased slightly with increasing child age (Figure 5). Mother feedback for child responses (i.e., the percentages of child responses to each cue level receiving feedback) paralleled mothers' use of all three levels of cue.

# DISCUSSION

THE GENERAL TRENDS IN THE STUDY ARE SIMILAR TO THOSE REPORTED BY SHATZ (1979). MOTHER STRATEGIES FOR ELICITING CHILD VERBAL BEHAVIOR FOLLOW CHILD MLU. UNLIKE SHATZ'S CROSS-SECTIONAL STUDY, THESE LONGITUDINAL DATA SHOW PROGRESSION ACROSS SEQUENTIAL SAMPLES OVER AN 18 MONTH PERIOD.

THE MOST INTERESTING DATA ARE THOSE SHOWING DIFFERENTIAL PATTERNS OF HIERARCHICAL CUEING. AS CHILD MLU INCREASES, MOTHERS DECREASE THEIR USE OF MODELS AS A STRATEGY FOR ELICITING CHILD RESPONSES. THERE ARE TWO POSSIBLE EXPLANATIONS FOR THIS; 1) IT IS NO LONGER NECESSARY FOR MOTHERS TO DIRECTIVELY INTRODUCE NEW VOCABULARY; OR, 2) AS CHILD RESPONSIVENESS INCREASES, THERE ARE FEWER OCCASIONS FOR THE MOTHER TO PROMPT A RESPONSE BY MODELING.

AS IN THE SHATZ STUDY, THE USE OF SIMPLE QUESTIONS TO ELICIT A LABEL WAS THE MOST FREQUENT AND CONSISTENTLY USED STRATEGY ACROSS TIME. THE SLIGHT INCREASES IN INFORMATION/OPINION SEEKING TYPES OF QUESTIONS (LEVEL 3) WAS PROBABLY LINKED TO INCREASING SEMANTIC SOPHISTICATION OF THE CHILD. LEVEL 3 QUESTIONS WERE SO INFREQUENT THAT ANY CONCLUSIONS ARE SPECULATIVE. COMPLEXITY OF EXPECTED CHILD RESPONSE WAS HIGHLY CORRELATED WITH CHILD MLU, WHEREAS, MOTHER MLU WAS NOT CORRELATED WITH CHILD MLU. COMPLEXITY OF EXPECTED CHILD RESPONSE MAY INDICATE A MORE SENSITIVE MATCH TO THE CHILD'S LINGUISTIC ABILITY THAN IS EVIDENT FROM THE RELATIONSHIP BETWEEN MOTHER AND CHILD MLU.

THE SLIGHT INCREASE OF DIVERSITY OF MOTHER EVR SEEN OVER TIME IS POSSIBLY SIMILAR TO THE DISCREPANCY BETWEEN PROTOTYPICAL FORM-FUNCTION PAIRINGS SEEN IN SHATZ'S HIGH MLU GROUP. THAT IS SHATZ'S DATA SUGGEST THAT FOR HER HIGH MLU GROUP THERE WERE FEWER PROTOTYPICAL FORM-FUNCTION PAIRINGS AND GREATER DIVERSITY IN MOTHER QUESTIONS.

WHILE THESE DATA SUGGEST CLOSE CORRESPONDENCE BETWEEN MOTHER STRATEGY AND CHILD MLU, IT IS NOT CLEAR WHETHER MOTHER STRATEGIES LEAD OR FOLLOW CHANGES IN CHILD LINGUISTIC ABILITY. A MORE DETAILED ANALYSIS SEEMS NECESSARY TO DETERMINE HOW MOTHERS ARE RESPONDING TO SPECIFIC CHANGES IN CHILD BEHAVIOR.

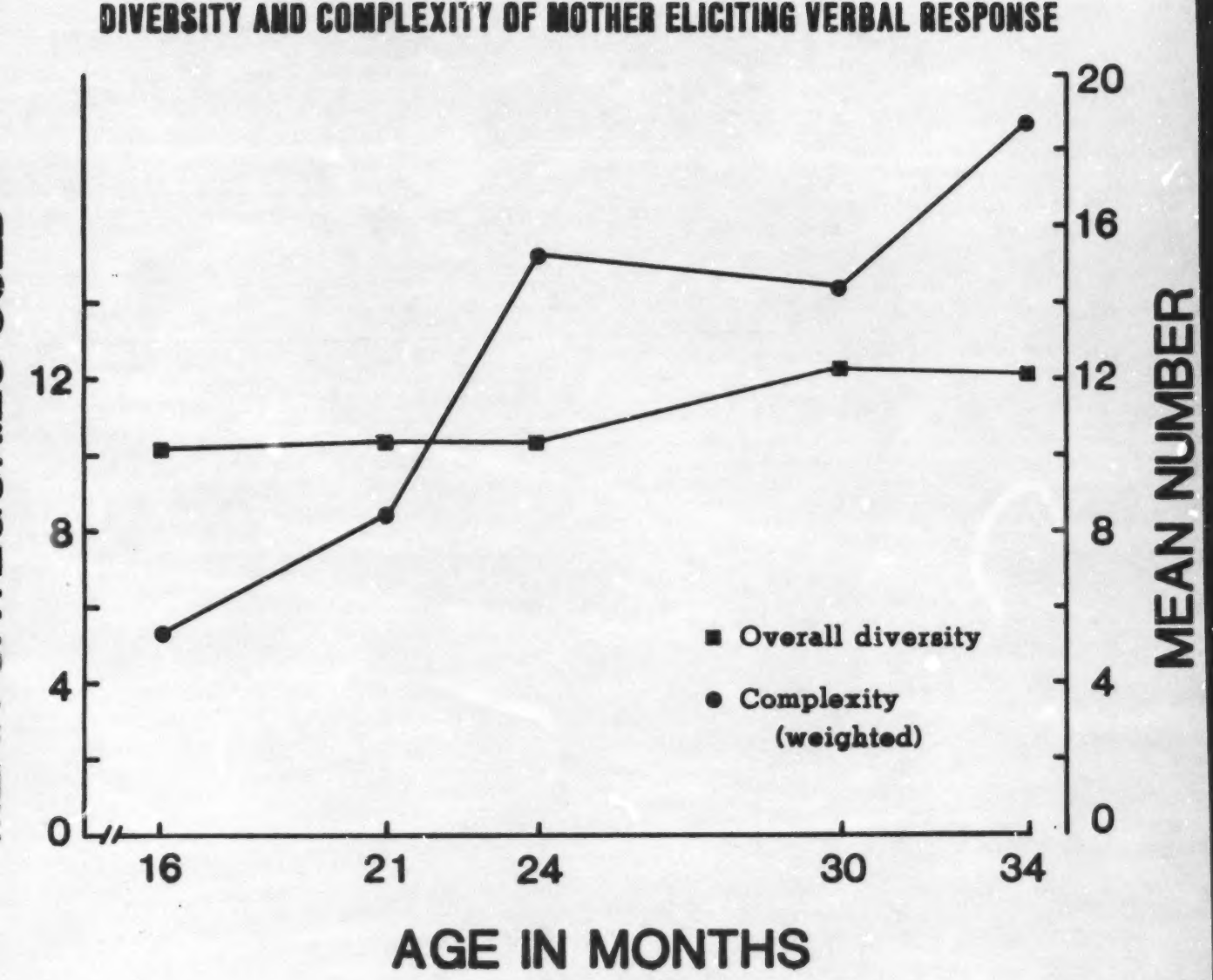
DIVERSITY AND COMPLEXITY OF MOTHER ELICITING VERBAL RESPONSE
20
16
12
8
4
0
MEAN NUMBER
Overall diversity
Complexity
(weighted)
16
21
24
30
34
AGE IN MONTHS

FIGURE 1

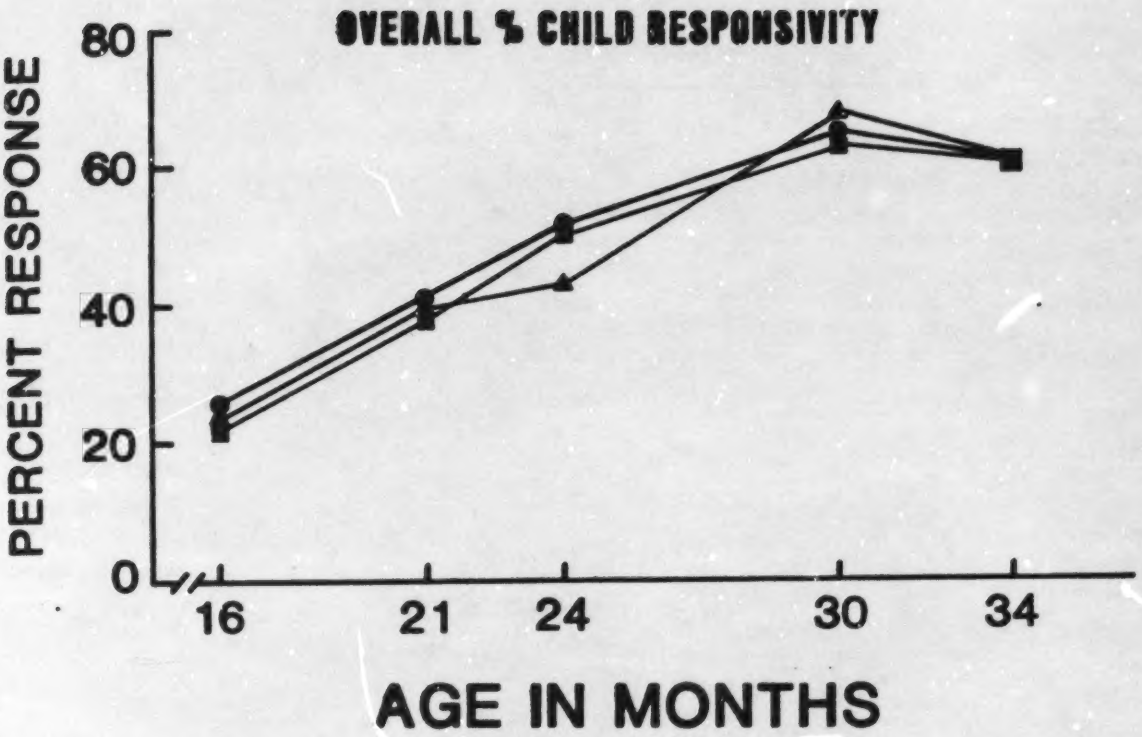
OVERALL % CHILD RESPONSIVITY
PERCENT RESPONSE
80
60
40
20
0
16
21
24
30
34
AGE IN MONTHS

FIGURE 2

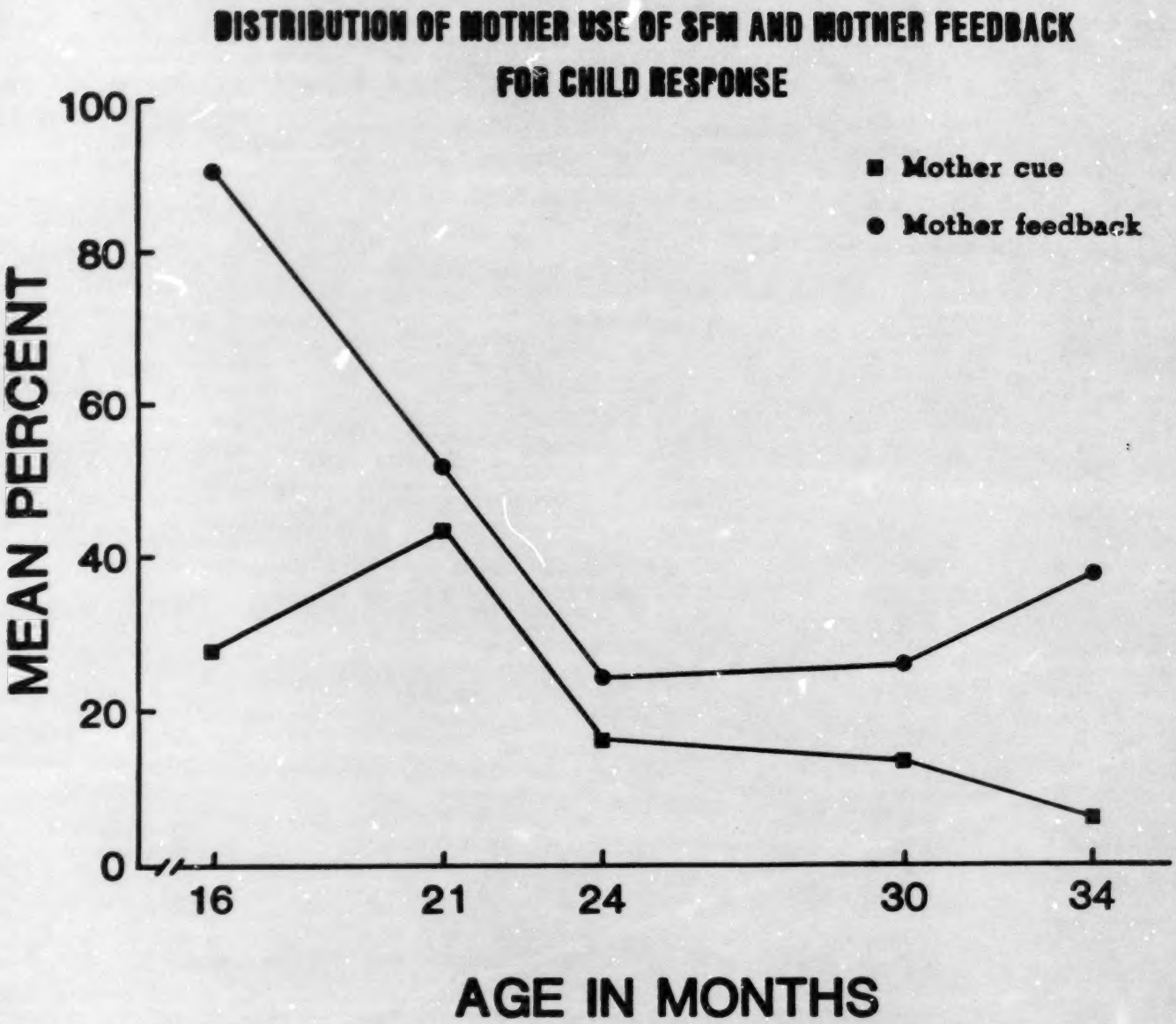
DISTRIBUTION OF MOTHER USE OF SFM AND MOTHER FEEDBACK FOR CHILD RESPONSE
Mother cue
Mother feedback
MEAN PERCENT
100
80
60
40
20
0
16
21
24
30
34
AGE IN MONTHS

FIGURE 3

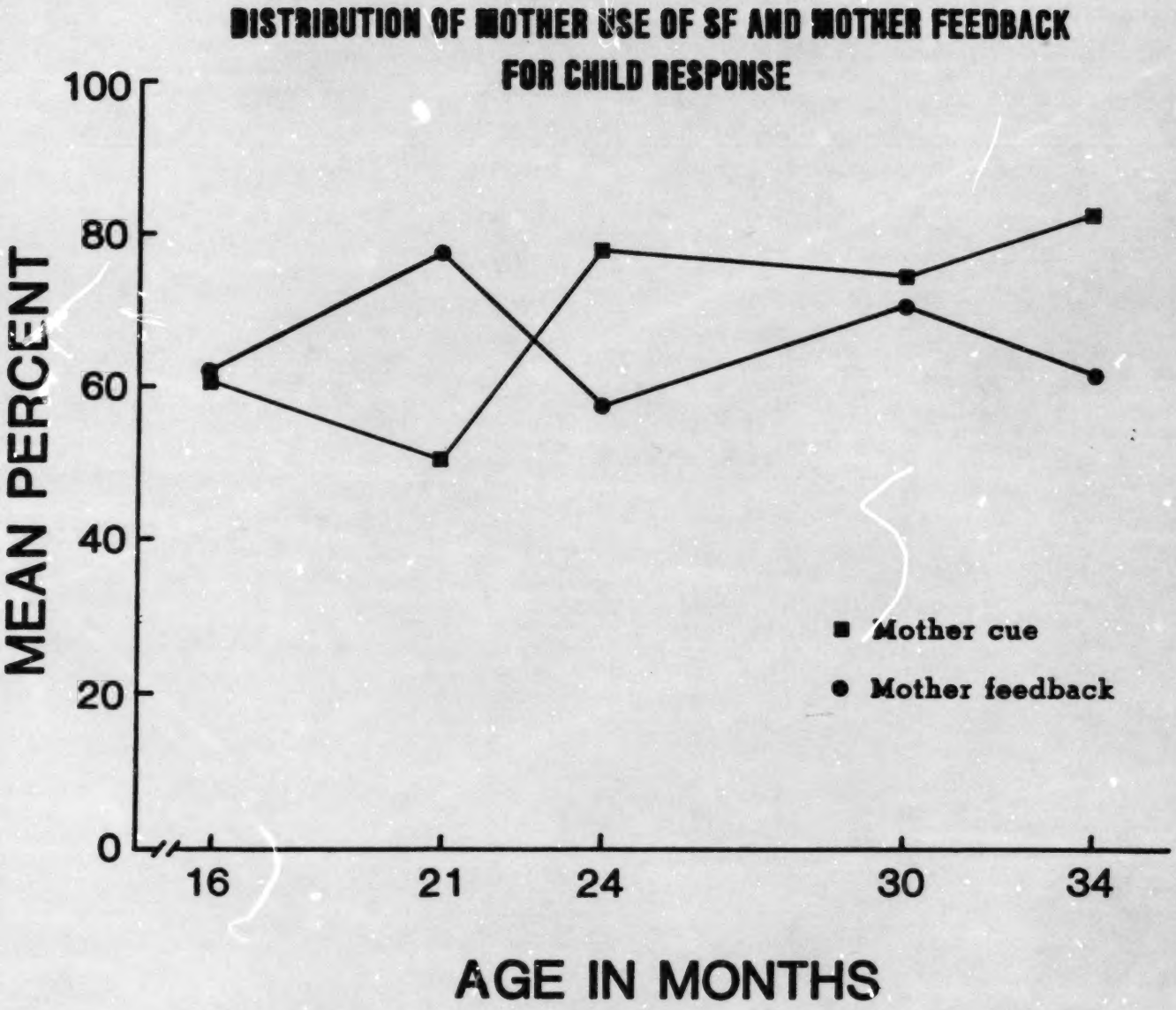
DISTRIBUTION OF MOTHER USE OF SF AND MOTHER FEEDBACK FOR CHILD RESPONSE
MEAN PERCENT
100
80
60
40
20
0
16
21
24
30
34
AGE IN MONTHS
Mother cue
Mother feedback

FIGURE 4

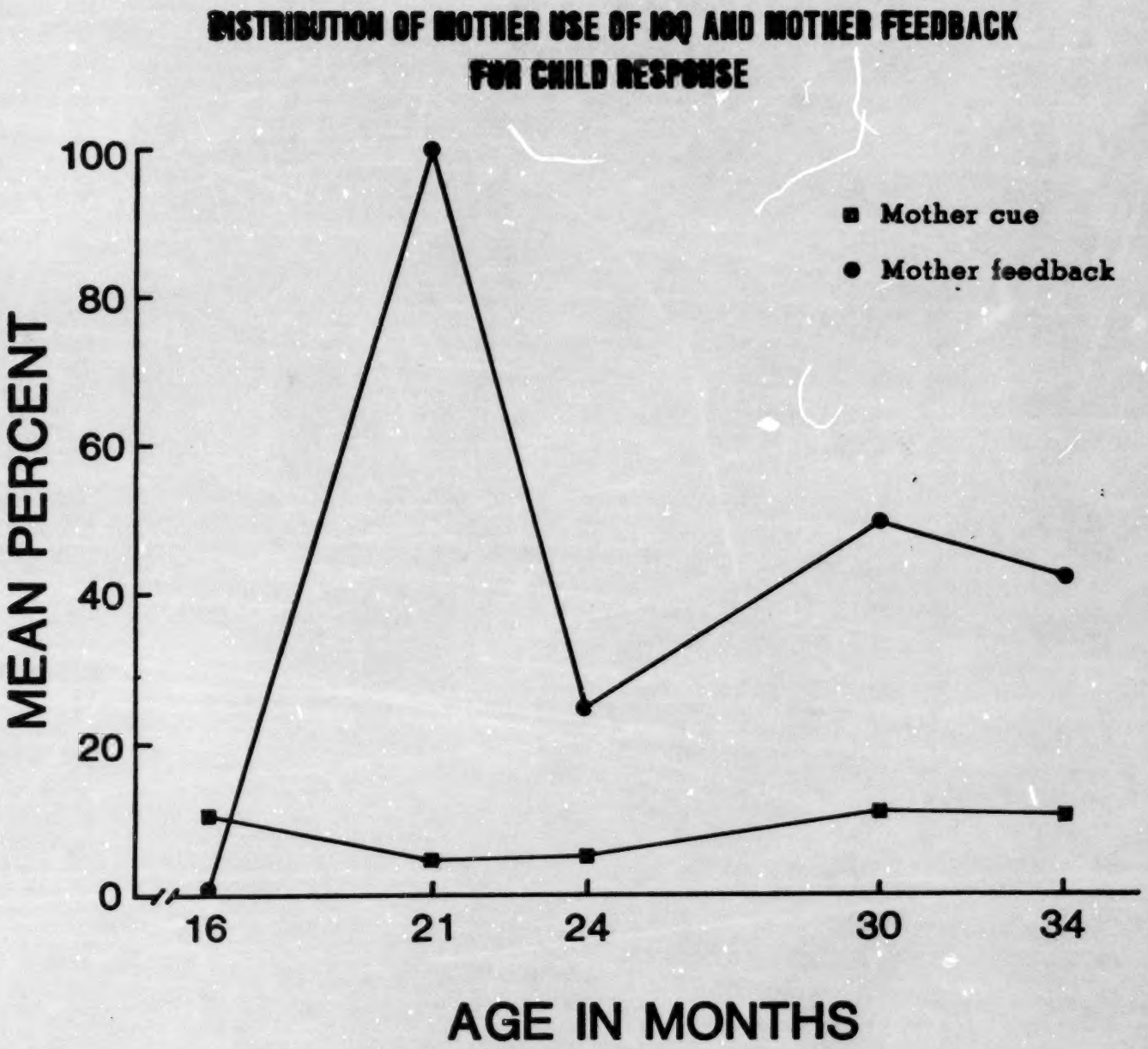
DISTRIBUTION OF MOTHER USE OF MOQ AND MOTHER FEEDBACK FOR CHILD RESPONSE
100
80
60
40
20
0
MEAN PERCENT
Mother cue
Mother feedback
16
21
24
30
34
AGE IN MONTHS

FIGURE 5

## REFERENCES


Moerk, E.L. (1976). Processes of language teaching and training in the interactions of mother-child dyads. Child Development, 47, 1064-1078.

Moerk, E.L. (1980). The mother of Eve as a first language teacher. Norwood, N.J. Ablex Publication Co.

Nielsen, L.M. (1982). Natural strategies of mother's language teaching behaviors: A longitudinal analysis. Unpublished master's thesis. University of Kansas.

Rogers-Warren, A.K., Alpert, C.L., McQuarter, R.J., and Weeks, L.A. (1980). The form and intent of mother's speech to language learning children. Paper presented at the annual meeting of the Association for Behavior Analysis, Dearborn, Michigan, May 1980.

Shatz, M. (1979). How to do things by asking: Form-Function Pairings in mother's questions and their relation to children's responses. Child Development, 50, 1093-1099.